

Williams (A)



MINERAL PRODUCTS OF THE UNITED STATES— 1884.

✓ [Abstract from a report entitled "The Mineral Resources of the United States," by ALBERT WILLIAMS, jr., Chief of Division of Mining Statistics and Technology, United States Geological Survey, for the calendar years 1883 and 1884, the second report of the series.]

Coal.—The only statistics in which the trade is interested are those relating to the amount of coal which is mined for and reaches the market. There is besides a local and colliery consumption which is usually disregarded in statistics, and which ranges from 5 to $6\frac{1}{2}$ per cent. of the total shipments. Of what may be called the commercial product the quantities in 1884 were as follows: Pennsylvania anthracite, 30,718,293 long tons; bituminous and brown coal, lignite, and small lots of anthracite mined elsewhere than in Pennsylvania, 66,875,772 long tons; total, 97,594,065 long tons. The spot value of the commercial product was: Pennsylvania anthracite, \$61,436,586; bituminous and all other coals, \$70,219,561; total, \$131,656,147. Including the local consumption, etc., the total product in 1884 may be stated at 106,906,295 long tons; namely, 33,175,756 long tons of Pennsylvania anthracite and 73,730,539 long tons of bituminous and all other coals; and the value at the mines was: Pennsylvania anthracite, \$66,351,512; bituminous and all other coals, \$77,417,066; total, \$143,768,578. The total production (that is, including colliery and local consumption) of anthracite was 1,160,713 long tons less than in 1883, while its value was \$10,905,543 less, the disproportionate decline in value being due to a fall of 25 cents per ton in spot price (\$2.25 to \$2). The total bituminous coal production increased 5,199,039 long tons over that of 1883; but its value was \$4,820,734 less, the average valuation at the collieries having fallen from \$1.20 to \$1.05. The total output of all coals showed a net gain in tonnage of 4,038,326 long tons and a decline in value of \$15,726,277.

Coke.—There were 4,873,805 short tons of coke made in 1884, worth \$7,242,878 at the ovens. This production consumed 7,951,974 short tons

of coal. The amount of coke made was 590,916 tons less than in 1883, and the value was \$878,729 less.

Petroleum.—The production of crude petroleum in 1884 was 24,089,758 barrels of 42 gallons each, of which the Pennsylvania and New York oil fields produced 23,622,758 barrels. The total value, at an average spot price of 85 cents, was \$20,476,294. As compared with 1883 the production was 689,529 barrels greater; but the total value was \$5,263,958 less, the average spot price having fallen from \$1.10, or 25 cents per barrel.

Natural gas.—The estimated value of the natural gas used in the United States in 1884 was \$1,460,000, as against \$475,000 in 1883. The value is computed from that of the coal superseded by natural gas.

Iron.—The principal statistics for 1884 are as follows: Iron ore mined, 8,200,000 long tons; value at mine, \$22,550,000. Domestic iron ore consumed, 7,718,129 long tons; value at mine, \$21,224,854. Imported iron ore consumed, 487,820 long tons; total iron ore consumed, ~~8,705,949~~ long tons. Pig iron made, 4,097,868 long tons, a decrease of 497,642 tons as compared with 1883; value at furnace, \$73,761,624, or \$18,148,576 less than in 1883. Total spot value of all iron and steel in the first stage of manufacture, excluding all duplications, \$107,000,000, a decline of \$35,000,000 from 1883. Fuel consumed in all iron and steel works, including blast furnaces, 1,973,305 long tons of anthracite, 4,226,986 long tons of bituminous coal, 3,833,170 long tons of coke, and 62,110,660 bushels of charcoal, besides a notable quantity of natural gas. Lime-stone used as flux, 3,401,930 long tons; value at quarry, \$1,700,965.

Gold and silver.—The mint authorities estimate the production in 1884 at \$30,800,000 gold and \$48,800,000 silver (coining rate); total, \$79,600,000. This was an increase of \$800,000 gold and \$2,600,000 silver, as compared with 1883. The gold production was equivalent to 1,489,949 troy ounces; and the silver to 37,744,605 troy ounces.

Copper.—The production in 1884, including 2,858,754 pounds made from imported pyrites, was 145,221,934 pounds, worth \$17,789,687, at an average price of 12½ cents per pound in New York City. The amount was 28,070,139 pounds greater than the production of 1883; but the value was \$275,120 less than that for 1883, owing to the decline in price. In 1884 4,224,000 pounds of bluestone (sulphate of copper, "blue vitriol") were made; worth, at 4.3 cents per pound, \$181,632.

Lead.—Production, 139,897 short tons. Total value, at an average price of \$75.32 per ton on the Atlantic sea-board, \$10,537,042. The production was 4,060 tons less than that of 1883, while the decrease in value was \$1,785,677. The production of white lead (carbonate) is estimated at about 65,000 short tons, worth, at 47 cents per pound, \$6,337,500, almost all of which was made from pig lead. The production of litharge and red lead has not been ascertained.

Zinc.—Production of metallic zinc, 38,544 short tons; worth, at an

average price of 4.44 cents per pound in New York City, \$3,422,707. The output was 1,672 tons greater than in 1883, and the value increased \$111,601. Besides the spelter and sheet zinc, about 13,000 short tons of zinc white (oxide) were made directly from the ore, the total value of which, at 3½ cents per pound, was \$910,000.

Quicksilver.—Production, 31,913 flasks (of 76½ pounds net = 2,441,344 pounds), or 14,812 flasks less than in 1883. Total value, at an average price of \$29.34 per flask at San Francisco, \$936,327, a decline of \$317,305 as compared with the total value of the product of the previous year. During the year 600,000 pounds of quicksilver vermillion were made, worth \$288,000.

Nickel.—Production of nickel contained in copper-nickel alloy, 64,550 pounds, worth, at 75 cents per pound, \$48,412; an increase of 5,750 pounds, but a decline of \$4,508 in total value, owing to the falling off in price.

Cobalt.—The amount of cobalt oxide made in 1884 was about 2,000 pounds, as against 1,096 pounds made in 1883. Its value, at \$2.55 per pound, was \$5,100. The value of cobalt ore and matte cannot be ascertained, as it is chiefly dependent on the nickel contents.

Manganese.—The output of manganese ore in 1884 was about 10,000 long tons, or 2,000 tons more than in 1883. The total value, at \$12 per ton at the mines, was \$120,000, or about the same as in 1883, the average price having declined \$3 per ton.

Chromium.—The production of chrome iron ore, all from California, was about 2,000 long tons, or about two-thirds as much as in 1883. At an average value of \$17.50 per ton at San Francisco, the total value was \$35,000.

Tin.—A little tin ore was taken out in the course of development work in Dakota, Wyoming, Virginia, and Alabama, but the only metallic tin made was a few hundred pounds from ore of the Black Hills (Dakota) mines made in sample tests at New York City pending the building of reduction works at the mines.

Platinum.—The amount mined in 1884 was about 150 troy ounces, worth, crude, \$3 per ounce.

Aluminum.—The amount made in the United States in 1884 was 1,800 troy ounces, an increase of 800 ounces over the production in 1883. At 75 cents per ounce the total value was \$1,350.

Building stone.—It is estimated that the value of the building stone quarried in 1884 was \$19,000,000, as against \$20,000,000 in 1883; the decline being due partly to dullness of trade and partly to the increased use of other structural materials.

Brick and tile.—The output was about the same as in 1883, but as manufacturers cut down expenses still further, meeting a lower market, the total value is estimated at \$30,000,000 as against \$34,000,000 in 1883.

Lime.—There were 37,000,000 barrels (of 200 pounds) made in 1884, the average value per barrel at the kilns being not over 50 cents, or \$18,500,000. The production was about 5,000,000 barrels greater than in 1883, but owing to the fall in price the total value was about \$700,000 less.

Cement.—About 100,000 barrels (of 400 pounds) of artificial Portland cement were made, or 10,000 barrels more than in 1883; the total value, at \$2.10 per barrel, being \$210,000. The production of cement from natural cement rock was 3,900,000 barrels (of 300 pounds), or 200,000 barrels less than in 1883; worth, at 90 cents per barrel, \$3,510,000. The total production of all kinds of cement was about 4,000,000 barrels, valued at \$3,720,000.

Precious stones.—The estimated value of American precious stones sold as specimens and souvenirs in 1884 was \$54,325, and the value of the stones sold to be cut into gems was \$28,650; total, \$82,975. About \$140,000 worth of gold quartz was saved as specimens or made into jewelry and ornaments.

Buhrstones.—The value of the buhrstones yearly made in the United States is about \$300,000.

Grindstones.—Dealers estimate the value of the grindstones made in 1884 at \$570,000.

Phosphates.—The production of washed phosphate rock in South Carolina during the year ending May 31, 1884, was 431,779 long tons, worth \$2,374,784, or 53,399 tons more than in the previous year, with an increase of \$104,504 in value. The average spot price, \$5.50 per ton, was 50 cents less than in the preceding year. The recent discoveries of phosphate rock in the adjoining States of North Carolina, Alabama, and Florida will probably lead to a still further increase in production. Of manufactured fertilizers, 967,000 short tons, worth \$26,110,000, were made in the year ending April 30, 1884, and 1,023,500 short tons, worth \$27,640,000, were made in the year ending April 30, 1885.

Marls.—In New Jersey about 875,000 tons, worth \$437,500 at the pits, were dug in 1884. In addition, small quantities were produced for local use in some of the Southern States. The production is declining, owing to competition with fertilizers made from phosphate rock, etc.

Gypsum.—In the Atlantic States, from Maine to Virginia, 65,000 long tons of land plaster and 60,000 tons of stucco, total 125,000 tons, were made in 1884, of which nearly all was from Nova Scotia gypsum. The statistics for Michigan have not been reported, but the production did not vary greatly from that in 1883, in which year it was 60,082 short tons of land plaster and 159,100 barrels (of 300 pounds) of stucco. In Ohio 4,217 short tons of land plaster and 20,307 barrels of stucco were produced. There was also a small production in other parts of

the country; but the total amount of domestic gypsum used is not known.

Salt.—The production in 1884 was 6,514,937 barrels of 280 pounds (equivalent to 1,824,182,360 pounds, or 32,574,685 bushels, or 912,091 short tons, according to the unit used). The total value, computed on average wholesale prices at the point of production, was \$4,197,734. The apparent output was 322,706 barrels greater than in 1883, while the value was \$13,308 less; but the production figures do not include a considerable stock on hand in the Onondaga district, not officially reported because not inspected.

Bromine.—The production is estimated at 281,100 pounds, all from the Ohio and West Virginia salt district; worth, at 24 cents per pound, \$67,464.

Borax.—Production about 7,000,000 pounds, or 500,000 pounds more than in 1883. The total value, however, was less than that of the product of 1883, being about \$490,000 at San Francisco rates, as against \$585,000 in 1883.

Sulphur.—No exact statistics. The production was only about 500 tons, worth about \$12,000.

Pyrites.—About 35,000 long tons were mined in the United States, worth about \$175,000 at the mines. Some 33,500 tons of imported pyrites were also burned, making a total consumption of 68,500 tons.

Barytes.—Full statistics not received. The production is estimated to have been about 25,000 tons; worth, at \$4 per ton, unground, at the point of production, \$100,000.

Mica.—The production of merchantable sheet mica, not including mica waste, was 147,410 pounds, valued at \$368,525.

Feldspar.—The production was 10,900 long tons, or 3,200 tons less than in 1883. Its value at the quarries was \$55,112.

Asbestos.—The amount mined was about 1,000 short tons, worth about \$30,000.

Graphite.—Production nominal, the supply being drawn from the stock accumulated in 1883.

Asphaltum.—The annual production is about 3,000 tons, having a spot value of \$10,500.

Alum.—About 38,000,000 pounds were made in the United States in 1884, or 3,000,000 pounds more than in 1883. At an average spot value of 17 $\frac{1}{8}$ cents per pound, the product was worth \$712,500.

Copperas.—The amount made in 1884 was 15,500,000 pounds, worth, at 60 cents per hundredweight, \$93,000.

Mineral waters.—The sales of natural mineral waters in 1884 amounted to 68,720,936 gallons, valued at \$1,665,490, an apparent increase of 21,431,193 gallons and \$526,007 upon the figures for 1883. While the sales are undoubtedly increasing it is possible that the excess in the reported quantity and value of the waters sold in 1884 as compared

with 1883 may be partly due to the greater fullness of the returns for 1884. Besides the waters bottled and placed on the market there is a large local consumption, not included in the foregoing figures.

Totals.—As was remarked in the former report, it is impossible to state the total mineral product in any form which shall not be open to just criticism. It is evident that the production statistics of such incongruous substances as iron ore, metallic gold and silver, the spot value of coal mined and the market value of metallic copper after having been transported hundreds of miles, the spot value of a crude substance like unground, unrefined barytes, and the value of a finished product like brick (in which the cost of manufacture is the leading item) cannot well be taken as items in a general summary. The statistics have been compiled with a view to giving information on those points which are of most interest and utility, and are presented in the form usual in the several branches of trade statistics. The result is that the values stated for the different products are necessarily taken at different stages of production or transportation, etc. Theoretically perfect statistics of mineral products would include first of all the actual net spot value of each substance in its crudest form, as taken from the earth; and yet for practical purposes such statistics would have little interest other than the fact that the items could be combined in a grand total in which each substance should be rated on a fairly even basis. The following groupings, therefore, are presented with a full realization of the incongruity of many of the items. The grand total might be considerably reduced by substituting the value of the iron ore mined for that of the pig iron made, by deducting the discount on silver, and by considering lime, salt, cement, borax, etc., as manufactures. It will also be remarked that the spot values of copper, lead, zinc, and chrome iron ore are much less than their respective values after transportation to market. Still, the form adopted seems to be the only one which admits of a comparison of the total values of the mineral products from year to year.

Metallic products of the United States in 1884.

	Quantity.	Value.
Pig iron, long tons, spot value.....	4,097,868	\$73,761,624
Silver, troy ounces, coining value.....	37,744,605	48,800,000
Gold, troy ounces, coining value.....	1,489,949	30,800,000
Copper, pounds, value at New York City (a)	145,221,934	17,789,687
Led, short tons, value at New York City	139,897	10,537,042
Zinc, short tons, value at New York City	38,544	3,422,707
Quicksilver, flasks, value at San Francisco.....	31,913	936,327
Nickel, pounds, value at Philadelphia (b)	64,550	48,412
Aluminum, troy ounces, value at Philadelphia	1,800	1,350
Platinum, troy ounces, value crude at New York City.....	150	450
Total		186,097,590

a Including copper made from imported pyrites.

b Including nickel in copper-nickel alloy.

Non-metallic mineral products of the United States in 1884 (spot values).

	Quantity.	Value.
Bituminous coal, brown coal, lignite, and anthracite mined elsewhere than in Pennsylvania.....	long tons (a)	73,730,539 \$77,417,066
Pennsylvania anthracite.....	do (b)	33,175,756 66,351,512
Petroleum	barrels..	24,089,758 20,476,294
Building stone.....		18,000,000
Lime.....	barrels..	37,000,000 18,500,000
Salt.....	do	6,514,937 4,197,734
Cement.....	do	4,000,000 3,720,000
South Carolina phosphate rock.....	long tons (c)	431,779 2,374,784
Limestone for iron flux.....	do	3,401,930 1,700,965
Mineral waters.....	gallons sold..	68,720,936 1,665,490
Natural gas.....		1,460,000
Zinc white.....	short tons..	13,000 910,000
Concentrated borax.....	pounds..	7,000,000 490,000
New Jersey marls.....	short tons..	875,000 437,500
Mica.....	pounds..	147,410 368,525
Pyrates.....	long tons..	35,000 175,000
Gold quartz souvenirs, jewelry, etc.....		140,000
Manganese ore.....	long tons..	10,000 120,000
Crude barytes	do	25,000 100,000
Ocher.....	do	7,000 84,000
Precious stones.....		82,975
Bromine.....	pounds..	281,000 67,464
Feldspar	long tons..	10,900 55,112
Chrome iron ore.....	do	2,000 35,000
Asbestus.....	short tons..	1,000 30,000
Slate ground as a pigment	long tons..	2,000 20,000
Sulphur	short tons..	500 12,000
Asphaltum.....	do	3,000 10,500
Cobalt oxide	pounds..	2,000 5,100
Total.....		220,007,021

a The commercial product, that is, the amount marketed, was only 66,875,772 tons, worth \$70,219,561.

b The commercial product, that is, the amount marketed, was only 30,718,293 tons, worth \$61,436,586.

c Year ending May 31.

Résumé of the values of the metallic and non-metallic mineral substances produced in the United States in 1884.

Metals.....	\$186,097,599
Mineral substances named in the foregoing table.....	220,007,021
	406,104,620
Fire-clay, kaolin, potter's clay, common brick clay, terra cotta, building sand, glass sand, limestone used as flux in lead smelting, limestone in glass making, iron ore used as flux in lead smelting, marls (other than New Jersey), gypsum, tin ore, antimony, iridosmine, mill-buhrstone and stone for making grindstones, novaculite, corundum, lithographic stone, talc and soapstone, quartz, fluorspar, nitrate of soda, carbonate of soda, sulphate of soda, native alum, ozocerite, mineral soap, strontia, infusorial earth and tripoli, pumice-stone, sienna, umber, etc., certainly not less than.....	7,000,000
Grand total.....	413,104,620

The production in 1884, 1883, and 1882 compared.—Tables showing the quantities and values of the mineral products of the United States in 1883 and 1882 are appended for the sake of comparison. From these it appears that the total value of the metals and minerals produced in 1884 was \$39,100,008 less than in 1883, and that the decline in 1883 from 1882 was \$3,012,061; that is, the falling off in value began on a small scale in 1883, but was accented in 1884. The net decline, as will be seen by reference to the tables, has been due rather to a depression in price than a decrease in quantity; indeed, several important substances show a decided increase in production, notwithstanding the general dullness of trade. The overproduction, taking the whole field into consideration, has been less than was generally feared.

Metallic products of the United States in 1883.

	Quantity.	Value.
Pig iron, long tons, spot value	4,595,510	\$91,910,200
Silver, troy ounces, coining value	35,733,622	46,200,000
Gold, troy ounces, coining value	1,451,249	30,000,000
Copper, pounds, value at New York City (a)	117,151,795	18,064,807
Lead, short tons, value at New York City	143,957	12,322,719
Zinc, short tons, value at New York City	36,872	3,311,106
Quicksilver, flasks, value at San Francisco	46,725	1,253,632
Nickel, pounds, value at Philadelphia (b)	58,800	52,920
Aluminum, troy ounces, value at Philadelphia	1,000	875
Platinum, troy ounces, value crude at New York City	200	600
Total		203,116,859

a Including copper made from imported pyrites.

b Including nickel in copper-nickel alloy.

Non-metallic mineral products of the United States in 1883 (spot values).

	Quantity.	Value.
Bituminous coal, brown coal, lignite, and anthracite mined elsewhere than in Pennsylvania	long tons (a) ..	\$82,237,800
Pennsylvania anthracite	long tons (b) ..	77,257,055
Petroleum	barrels ..	25,740,252
Building stone		20,000,000
Lime	barrels ..	19,200,000
Cement	do ..	4,293,500
Salt	do ..	4,211,042
South Carolina phosphate rock	long tons (c) ..	378,380
Limestone for iron flux	long tons ..	1,907,136
Mineral waters	gallons sold ..	1,139,483
Concentrated borax	pounds ..	585,000
New Jersey marls	short tons ..	486,000
Natural gas		475,000
Mica	pounds ..	285,000

a The commercial product, that is, the amount marketed, was only 65,268,095 tons, worth \$78,321,714.

b The commercial product, that is, the amount marketed, was only 31,793,027 tons, worth \$71,534,311.

c Year ending May 31.

Non-metallic mineral products of the United States in 1883, &c.—Continued.

		Quantity.*	Value.
Pyrites	long tons..	25,000	\$137,500
Manganese ore	long tons..	8,000	120,000
Gold quartz souvenirs, jewelry, etc		115,000	
Crude barytes	long tons..	27,000	108,000
Precious stones			92,050
Ocher	long tons..	7,000	84,000
Bromine	pounds..	301,100	72,264
Feldspar	long tons..	14,100	71,112
Chrome iron ore	do ..	3,000	60,000
Graphite	pounds..	575,000	46,000
Asbestus	short tons..	1,000	30,000
Sulphur	do ..	1,000	27,000
Slate ground as a pigment	long tons..	2,000	24,000
Asphaltum	short tons..	3,000	10,500
Cobalt oxide	pounds..	1,096	2,795
Total			241,087,769

Résumé of the values of the metallic and non-metallic mineral substances produced in the United States in 1883.

Metals		\$203,116,859
Mineral substances named in the foregoing table		241,087,769
		444,204,628
Estimated value of mineral products unspecified		8,000,000
Grand total		452,204,628

Metallic products of the United States in 1882.

	Quantity.	Value.
Pig iron, long tons, spot value	4,623,323	\$106,336,429
Silver, troy ounces, coining value	36,197,695	46,800,000
Gold, troy ounces, coining value	1,572,186	32,500,000
Copper, pounds, value at New York City (a)	91,646,232	16,038,091
Lead, short tons, value at New York City	132,890	12,624,550
Zinc, short tons, value at New York City	33,765	3,646,620
Quicksilver, flasks, value at San Francisco	52,732	1,487,042
Nickel, pounds, value at Philadelphia (b)	281,616	309,777
Antimony, short tons, value at San Francisco	60	12,000
Platinum, troy ounces, value, crude, at New York City	200	600
Total		219,755,109

a Including copper made from imported pyrites. b Including nickel in copper-nickel alloy.

Non-metallic mineral products of the United States in 1882 (spot values).

		Quantity.	Value.
Bituminous coal, brown coal, lignite, and anthracite mined elsewhere than in Pennsylvania	long tons (a) ..	60,861,190	\$76,076,487
Pennsylvania anthracite	long tons (b) ..	31,358,264	70,556,004
Crude petroleum	barrels (c) ..	30,053,500	23,704,698
Lime	barrels ..	31,000,000	21,700,000
Building stone			21,000,000
Salt	barrels ..	6,412,373	4,340,140
Cement	do ..	3,250,000	3,672,750
Limestone for iron flux	long tons ..	3,850,000	2,310,000
South Carolina phosphate rock	long tons (d) ..	332,077	1,992,462
New Jersey marls	short tons ..	1,080,000	540,000
Concentrated borax	pounds ..	4,236,291	338,003
Mica	do ..	100,000	250,000
Natural gas			215,000
Ocher	long tons ..	7,000	105,000
Soapstone	short tons ..	6,000	90,000
Crude barytes	long tons ..	20,000	80,000
Precious stones			75,000
Gold quartz souvenirs, jewelry, etc			75,000
Pyrites	long tons ..	12,000	72,900
Manganese ore	do ..	3,500	52,500
Chrome iron ore	do ..	2,500	50,000
Asbestos	short tons ..	1,200	36,000
Graphite	pounds ..	425,000	34,000
Cobalt oxide	do ..	11,653	32,046
Slate ground as a pigment	long tons ..	2,000	24,000
Sulphur	short tons ..	600	21,000
Asphaltum	do ..	3,000	10,500
Corundum	do ..	500	6,250
Pumice-stone	do ..	70	1,750
Total			227,461,580

a The commercial product, that is, the amount marketed, was only 57,963,038 tons, worth \$72,453,797.

b The commercial product, that is, the amount marketed, was only 29,120,096 tons, worth \$65,520,216.

c Pennsylvania and New York field only; the outside production was very small.

d Year ending May 31.

Résumé of the values of the metallic and non-metallic mineral substances produced in the United States in 1882.

Metals		\$219,755,109
Mineral substances named in the foregoing table		227,461,580
		447,216,689
Estimated value of mineral products unspecified		8,000,000
Grand total		455,216,689

This total for 1882 has been increased, by corrections and additions, \$1,304,283 upon the figure given in the first report of this series, which was \$453,912,406.